PB-248 889

DEPUE LAKE, BUREAU COUNTY, ILLINOIS

Pacific Northwest Environmental Research Laboratory

Prepared for:

National Environmental Research Center

June 1975

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1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Report on **Depue Lake, Bureau County, Illinois**		5. REPORT DATE Prepared **June 1975** 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Anonymous (National Eutrophication Survey Staff)		8. PERFORMING ORGANIZATION REPORT NO. Working Paper # **303**
9. PERFORMING ORGANIZATION NAME AND ADDRESS Pacific Northwest Environmental Research Laboratory U.S. Environmental Protection Agency 200 S. W. 35th St. Corvallis, Oregon 97330		10. PROGRAM ELEMENT NO. 1BA029 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS Office of Research and Development U.S. Environmental Protection Agency 401 M Street, S. W. Washington, DC 20460		13. TYPE OF REPORT AND PERIOD COVERED Final - **1972** 14. SPONSORING AGENCY CODE

15. SUPPLEMENTARY NOTES
Prepared in cooperation with the U.S. Environmental Protection Agency, National Environmental Research Center, Las Vegas, Nevada 89114

16. ABSTRACT
Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN-ENDED TERMS	c. COSATI Field/Group
eutrophication lakes nutrients phosphorus nitrogen loading		08B 05C

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report)	21. NO. OF PAGES
Release unlimited		31
	20. SECURITY CLASS (This page)	22. PRICE 400

EPA Form 2220-1 (9-73)

PB 248 889

026107

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES

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REPORT
ON
DEPUE LAKE
BUREAU COUNTY
ILLINOIS
EPA REGION V
WORKING PAPER No. 303

WITH THE COOPERATION OF THE
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
AND THE
ILLINOIS NATIONAL GUARD
JUNE, 1975

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to fresh water lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS*

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

* Flow data could not be provided; therefore, this report primarily will relate to the lake sampling data.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Illinois Environmental Protection Agency for professional involvement and to the Illinois National Guard for conducting the tributary sampling phase of the Survey.

Dr. Richard H. Briceland, Director of the Illinois Environmental Protection Agency; and Ronald M. Barganz, State Survey Coordinator, and John J. Forneris, Manager of Region III, Field Operations Section of the Division of Water Pollution Control, provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports, and provided critiques most useful in the preparation of this Working Paper series.

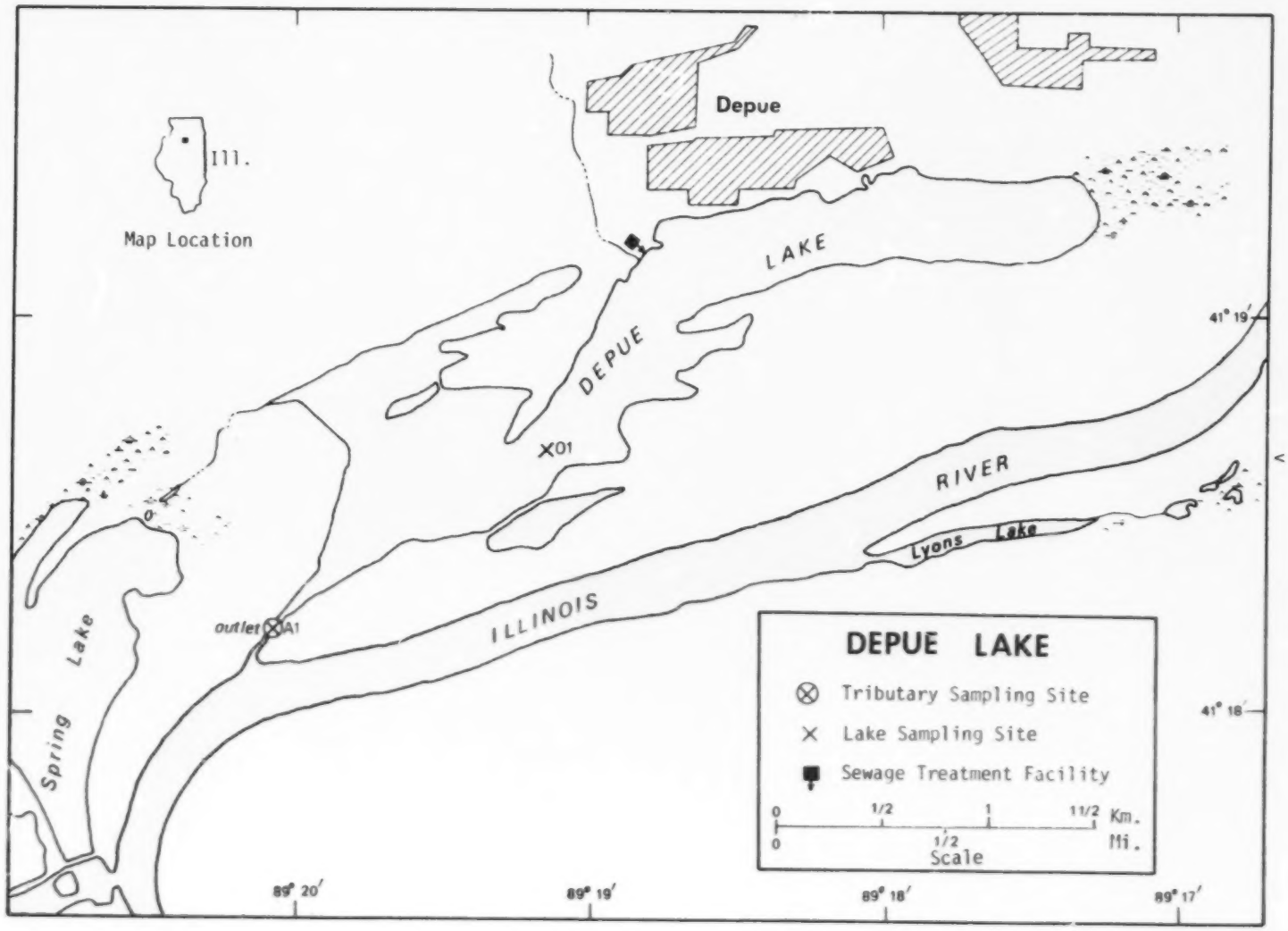
Major General Harold R. Patton, the Adjutant General of Illinois, and Project Officer Colonel Daniel L. Fane, who directed the volunteer efforts of the Illinois National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF ILLINOIS

LAKE NAME	COUNTY
Baldwin	Randolph
Bloomington	McLean
Carlyle	Bond, Clinton, Fayette
Cedar	Lake
Charleston	Coles
Coffeen	Montgomery
Crab Orchard	Jackson, Williamson
Decatur	Macon
DePue	Bureau
East Loon	Lake
Fox	Lake
Grass	Lake
Highland Silver	Madison
Holiday	LaSalle
Horseshoe	Madison
Long	Lake
Lou Yaeger	Montgomery
Marie	Lake
Old Ben Mine	Franklin
Pistakee	Lake, McHenry
Raccoon	Marion
Rend	Franklin, Jefferson
Sangchris	Christian
Shelbyville	Moultrie, Shelby
Slocum	Lake
Springfield	Sangamon
Storey	Knox
Vandalia	Fayette
Vermilion	Vermilion
Wee Ma Tuk	Fulton
Wonder	McHenry


Depue
Ill.
Map Location
LAKE
DEPUE
RIVER
ILLINOIS
Lyons Lake
Spring Lake
outlet
A1
X01
41° 19′
41° 18′
89° 20′
89° 19′
89° 18′
89° 17′
DEPUE LAKE
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
0 1/2 1 1 1/2 Km.
0 1/2 Mi.
Scale

DEPUE LAKE

STORET NO. 1752

I. INTRODUCTION

Because of the diffuse and ill-defined drainage, the U.S. Geological Survey could not provide flow data; for this reason, it was not possible to determine nutrient loading data for DePue Lake. Therefore, this report primarily will relate to the lake sampling data, although all of the data obtained during the Survey are included in the appendices.

II. CONCLUSIONS

A. Trophic Condition:

Survey data indicate that DePue Lake is highly eutrophic. It ranked last in overall trophic quality when the 31 Illinois lakes sampled in 1973 were compared using a combination of six water quality parameters*. Twenty-seven lakes had less median total and dissolved phosphorus and median inorganic nitrogen, 29 had greater mean Secchi disc transparency, and 23 had less mean chlorophyll a.

B. Rate-Limiting Nutrient:

There was a significant loss of phosphorus in the assay sample between the time of collection and the beginning of the assay, and the results are not representative of conditions in the lake at the time the sample was taken (05/12/73). However, the lake data

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* See Appendix A.

indicate phosphorus limitation in May but nitrogen limitation in August and October.

C. Nutrient Controllability:

The only measured nutrient load to the lake was from the DePue wastewater treatment plant. This facility discharged 2,820 kg of total phosphorus and 6,415 kg of total nitrogen directly to the lake during the sampling year. The phosphorus contribution of this plant alone resulted in a loading rate of 1.33 $g/m^2/yr$.

As noted above, flow data are not available, and the mean hydraulic retention time of the lake cannot be determined, but it would have to be a very short nine days to make the treatment plant loading rate just equal to the rate proposed by Vollenweider (Vollenweider and Dillon, 1974) as a eutrophic rate. However, in view of the existing trophic condition of the lake, it is likely than any appreciable reduction in phosphorus inputs would result in at least some improvement, particularly since the lake was phosphorus limited during one of the three sampling visits.

III. LAKE CHARACTERISTICS†

A. Lake Morphometry*:

1. Surface area: 2.12 kilometers^2.
2. Mean depth: 1.2 meters.
3. Maximum depth: >3.1 meters.
4. Volume: 2.544×10^6 m^3.

B. Precipitation**:

1. Year of sampling: 104.1 centimeters.
2. Mean annual: 86.5 centimeters.

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† Table of metric conversions--Appendix B.
* Forneris, 1973.
** See Working Paper No. 175, "...Survey Methods, 1973-1976".

IV. LAKE WATER QUALITY SUMMARY

DePue Lake was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from one or more depths at one station on the lake (see map, page v). During each visit, a single depth-integrated (near bottom to surface) sample was collected for phytoplankton identification and enumeration; and a similar sample was taken for chlorophyll a analysis. During the May visit, a single 18.9-liter depth-integrated sample was collected for algal assays. The maximum depth sampled was 3.1 meters.

The lake sampling results are presented in full in Appendix C and are summarized in the following table.

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR DEPUE LAKE
STORET CODE 1752

PARAMETER	1ST SAMPLING (5/12/73) 1 SITES RANGE	MEAN	MEDIAN	2ND SAMPLING (8/ 7/73) 1 SITES RANGE	MEAN	MEDIAN	3RD SAMPLING (10/16/73) 1 SITES RANGE	MEAN	MEDIAN
TEMP (C)	16.7 - 16.9	16.8	16.8	30.5 - 30.5	30.5	30.5	17.5 - 17.5	17.5	17.5
DISS OXY (MG/L)	7.8 - 8.0	7.9	7.9	7.4 - 7.4	7.4	7.4	0.0 - 0.0	0.0	0.0
CNDCTVY (MCHOMO)	675. - 700.	683.	675.	877. - 877.	877.	877.	590. - 590.	590.	590.
PH (STAND UNITS)	7.7 - 7.9	7.8	7.9	8.3 - 8.3	8.3	8.3	8.1 - 8.1	8.1	8.1
TOT ALK (MG/L)	230. - 250.	240.	240.	240. - 240.	240.	240.	171. - 171.	171.	171.
TOT P (MG/L)	0.357 - 0.438	0.394	0.388	1.030 - 1.030	1.030	1.030	0.499 - 0.499	0.499	0.499
ORTHO P (MG/L)	0.238 - 0.276	0.260	0.266	0.556 - 0.556	0.556	0.556	0.362 - 0.362	0.362	0.362
NO2+NO3 (MG/L)	3.330 - 3.720	3.560	3.630	1.720 - 1.720	1.720	1.720	1.200 - 1.200	1.200	1.200
AMMONIA (MG/L)	0.520 - 0.720	0.637	0.670	0.720 - 0.720	0.720	0.720	0.980 - 0.980	0.980	0.980
KJEL N (MG/L)	1.300 - 1.600	1.433	1.400	3.700 - 3.700	3.700	3.700	3.000 - 3.000	3.000	3.000
INORG N (MG/L)	4.050 - 4.300	4.197	4.240	2.440 - 2.440	2.440	2.440	2.180 - 2.180	2.180	2.180
TOTAL N (MG/L)	4.930 - 5.120	4.993	4.930	5.420 - 5.420	5.420	5.420	4.200 - 4.200	4.200	4.200
CHLRPYL A (UG/L)	21.4 - 21.4	21.4	21.4	112.7 - 112.7	112.7	112.7	42.4 - 42.4	42.4	42.4
SECCHI (METERS)	0.5 - 0.5	0.5	0.5	0.2 - 0.2	0.2	0.2	0.2 - 0.2	0.2	0.2

B. Biological characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal units per ml
05/12/73	1. Flagellates	14,594
	2. Cyclotella sp.	1,351
	3. Dinobryon sp.	721
	4. Stephanodiscus sp.	450
	5. Raphidiopsis sp.	360
	Other genera	1,713
	Total	19,189
08/07/73	1. Euglena sp.	3,469
	2. Cyclotella sp.	1,667
	3. Stephanodiscus sp.	1,429
	4. Actinastrum sp.	1,157
	5. Phacus sp.	646
	Other genera	3,930
	Total	12,298
10/16/73	1. Euglena sp.	3,065
	2. Phacus sp.	1,008
	3. Cryptomonas sp.	777
	4. Navicula sp.	693
	5. Actinastrum sp.	504
	Other genera	2,644
	Total	8,691

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
05/12/73	01	21.4
08/07/73	01	112.7
10/16/73	01	42.4

C. Limiting Nutrient Study:

There was a 48% loss of orthophosphorus in the assay sample between the time of collection and the beginning of the assay, and the results are not representative of conditions in the lake at the time the sample was taken (05/12/73). However, on the basis of assay yields obtained in other lake samples with similar nutrient levels, had the phosphorus loss not occurred, the expected yield of the assay alga (Selenastrum capricornutum) would have been a very high 112 mg/l dry weight.

The lake data indicate phosphorus limitation in May (the mean N/P ratio = 16/1) but nitrogen limitation in August (the mean N/P = 4/1) and October (the mean N/P = 6/1).

V. WASTE SOURCES

A. Known municipal*:

Name	Pop. Served	Treatment	Mean Flow (m^3/d)	Receiving Water
DePue	1,919	cont. stab.	1,918.0	DePue Lake

B. Known industrial: None

* Pirog, 1973; see Appendix D for data.

VI. LITERATURE REVIEWED

Forneris, John J., 1973. Personal communication (lake morphometry). IL Env. Prot. Agency, Springfield.

Pirog, Ricky (Supt.), 1973. Treatment plant questionnaire (DePue STP). DePue.

Vollenweider, R. A., and P. J. Dillon, 1974. The application of the phosphorus loading concept to eutrophication research. Natl. Res. Council of Canada Publ. No. 13690, Canada Centre for Inland Waters, Burlington, Ontario.

VII. APPENDICES

APPENDIX A

LAKE RANKINGS

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
1703	LAKE BLOOMINGTON	0.050	5.730	464.667	26.200	14.400	0.020
1706	LAKE CARLYLE	0.084	1.270	477.889	17.367	11.000	0.032
1708	LAKE CHARLESTON	0.160	4.680	490.667	12.000	8.400	0.065
1711	COFFEEN LAKE	0.032	0.260	456.222	7.700	14.900	0.012
1712	CRAB ORCHARD LAKE	0.082	0.200	482.222	59.867	13.800	0.013
1714	LAKE DECATUR	0.129	3.750	479.571	43.000	14.500	0.062
1725	LONG LAKE	0.704	1.190	482.667	49.333	8.800	0.398
1726	LAKE LOU YAEGER	0.106	1.600	489.583	10.662	11.400	0.076
1727	LAKE MARIE	0.098	0.370	467.667	39.533	14.700	0.057
1733	PISTAKEE LAKE	0.203	0.370	485.667	75.867	7.000	0.062
1735	RENO LAKE	0.071	0.210	471.500	23.533	12.700	0.012
1739	LAKE SHELBYVILLE	0.062	3.290	461.333	17.161	14.800	0.019
1740	SILVER LAKE (HIGHLAND)	0.226	0.970	489.500	5.822	14.800	0.057
1742	LAKE SPRINGFIELD	0.108	3.265	483.385	13.013	10.800	0.059
1748	VERMILION LAKE	0.109	4.695	481.500	31.150	14.200	0.050
1750	WONDER LAKE	0.426	0.890	486.000	98.533	7.800	0.132
1751	LAKE STORY	0.072	2.510	459.333	17.250	14.800	0.021
1752	DEPUE LAKE	0.438	4.050	490.000	58.833	7.600	0.276
1753	LAKE SANGCHRIS	0.050	1.970	475.417	19.292	14.500	0.009
1754	LAKE HOLIDAY	0.167	3.135	485.167	51.217	7.200	0.046
1755	FOX LAKE	0.219	0.375	486.167	63.850	8.800	0.083
1756	GRASS LAKE	0.301	0.820	481.000	83.500	5.900	0.093
1757	EAST LOON LAKE	0.076	0.120	450.000	22.300	14.900	0.018
1758	SLOCUM LAKE	0.865	0.200	487.333	221.100	5.800	0.362
1759	CEDAR LAKE	0.029	0.170	400.333	5.767	12.800	0.013
1761	LAKE WEMATUK	0.069	1.770	466.333	7.967	14.500	0.031
1762	RACCOON LAKE	0.106	0.310	484.333	19.217	13.800	0.020
1763	BALDWIN LAKE	0.044	0.140	461.167	11.333	13.200	0.007

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	15- MIN DO	MEDIAN DISS ORTHO P
1764	LAKE VANDALIA	0.116	0.480	478.111	11.276	14.800	0.023
1765	OLD BEN MINE RESERVOIR	0.930	0.205	478.333	31.433	11.200	0.575
1766	HORSESHOE LAKE	0.127	0.705	482.833	182.250	6.800	0.018

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PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P	INDEX NO
1703	LAKE BLOOMINGTON	88 (26)	0 (0)	80 (24)	47 (14)	13 (2)	68 (20)	296
1706	LAKE CARLYLE	63 (19)	40 (12)	63 (19)	63 (19)	63 (19)	53 (16)	345
1708	LAKE CHARLESTON	37 (11)	7 (2)	0 (0)	77 (23)	77 (23)	27 (8)	225
1711	COFFEEN LAKE	97 (29)	77 (23)	93 (28)	93 (28)	2 (0)	92 (27)	454
1712	CRAB ORCHARD LAKE	67 (20)	90 (27)	43 (13)	20 (6)	42 (12)	85 (25)	347
1714	LAKE DECATUR	40 (12)	13 (4)	53 (16)	33 (10)	30 (8)	32 (9)	201
1725	LONG LAKE	7 (2)	43 (13)	40 (12)	30 (9)	72 (21)	3 (1)	195
1726	LAKE LOU YAEGER	30 (9)	37 (11)	7 (2)	87 (26)	57 (17)	23 (7)	241
1727	LAKE MARIE	60 (18)	68 (20)	73 (22)	37 (11)	23 (7)	42 (12)	303
1733	PISTAKEE LAKE	27 (8)	68 (20)	23 (7)	13 (4)	90 (27)	32 (9)	253
1735	RENO LAKE	77 (23)	80 (24)	70 (21)	50 (15)	53 (16)	92 (27)	422
1739	LAKE SHELBYVILLE	83 (25)	17 (5)	83 (25)	70 (21)	13 (2)	73 (22)	339
1740	SILVER LAKE (HIGHLAND)	20 (6)	47 (14)	10 (3)	97 (29)	13 (2)	42 (12)	229
1742	LAKE SPRINGFIELD	53 (16)	20 (6)	33 (10)	73 (22)	67 (20)	37 (11)	283
1748	VERMILION LAKE	50 (15)	3 (1)	47 (14)	43 (13)	37 (11)	47 (14)	227
1750	WONDER LAKE	13 (4)	50 (15)	20 (6)	7 (2)	80 (24)	13 (4)	183
1751	LAKE STORY	73 (22)	27 (8)	90 (27)	67 (20)	13 (2)	63 (19)	333
1752	DEPUE LAKE	10 (3)	10 (3)	3 (1)	23 (7)	83 (25)	10 (3)	139
1753	LAKE SANGCHRIS	88 (26)	30 (9)	67 (20)	57 (17)	30 (8)	97 (29)	369
1754	LAKE HOLIDAY	33 (10)	23 (7)	27 (8)	27 (8)	87 (26)	50 (15)	247
1755	FOX LAKE	23 (7)	63 (19)	17 (5)	17 (5)	72 (21)	20 (6)	212
1756	GRASS LAKE	17 (5)	53 (16)	50 (15)	10 (3)	97 (29)	17 (5)	244
1757	EAST LOON LAKE	70 (21)	100 (30)	97 (29)	53 (16)	2 (0)	77 (23)	349
1758	SLOCUM LAKE	3 (1)	87 (26)	13 (4)	0 (0)	100 (30)	7 (2)	210
1759	CEDAR LAKE	100 (30)	93 (28)	100 (30)	100 (30)	50 (15)	85 (25)	528
1761	LAKE WEMATUK	80 (24)	33 (10)	77 (23)	90 (27)	30 (8)	57 (17)	367
1762	RACCOON LAKE	57 (17)	73 (22)	30 (9)	60 (18)	42 (12)	68 (20)	330
1763	BALDWIN LAKE	93 (28)	97 (29)	87 (26)	80 (24)	47 (14)	100 (30)	504

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P	INDEX NO
1764	LAKE VANDALIA	47 (14)	60 (18)	60 (18)	83 (25)	13 (2)	60 (18)	323
1765	OLD BEN MINE RESERVOIR	0 (0)	83 (25)	57 (17)	40 (12)	60 (18)	0 (0)	240
1766	HORSESHOE LAKE	43 (13)	57 (17)	37 (11)	3 (1)	93 (28)	80 (24)	313

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	1759	CEDAR LAKE	528
2	1763	BALDWIN LAKE	504
3	1711	COFFEEN LAKE	454
4	1735	RENO LAKE	422
5	1757	EAST LOON LAKE	399
6	1753	LAKE SANGCHRIS	369
7	1761	LAKE WENATUK	367
8	1712	CRAB ORCHARD LAKE	347
9	1706	LAKE CARLYLE	345
10	1739	LAKE SHELBYVILLE	339
11	1751	LAKE STORY	333
12	1762	RACCOON LAKE	330
13	1764	LAKE VANDALIA	323
14	1766	HORSESHOE LAKE	313
15	1727	LAKE MARIE	303
16	1703	LAKE BLOOMINGTON	296
17	1742	LAKE SPRINGFIELD	283
18	1733	PISTAKEE LAKE	253
19	1754	LAKE HOLIDAY	247
20	1756	GRASS LAKE	244
21	1726	LAKE LOU YAEGER	241
22	1765	OLD BEN MINE RESERVOIR	240
23	1740	SILVER LAKE (HIGHLAND)	229
24	1748	VERMILION LAKE	227
25	1708	LAKE CHARLESTON	225
26	1755	FOX LAKE	212
27	1758	SLOCUM LAKE	210
28	1714	LAKE DECATUR	201

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
29	1725	LONG LAKE	195
30	1750	WONDER LAKE	183
31	1752	DEPUE LAKE	139

APPENDIX B

CONVERSIONS FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX C

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 75/10/23

175201
41 18 38.0 089 19 09.0
DEPUE LAKE
17011 ILLINOIS

11EPALES
3

2111202
0013 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/05/12	10 45	0000	16.8		18	700	7.70	230	0.720	1.600	3.330	0.266
	10 45	0003	16.9	7.8		675	7.90	240	0.520	1.400	3.720	0.276
	10 45	0010	16.7	8.0		675	7.90	250	0.670	1.300	3.630	0.238
73/08/07	17 30	0000	30.5	7.4	6	877	8.30	240	0.720	3.700	1.720	0.556
73/10/16	17 30	0000	17.5		6	590	8.10	171	0.980	3.000	1.200	0.362

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/05/12	10 45	0000	0.388	21.4
	10 45	0003	0.438	
	10 45	0010	0.357	
73/08/07	17 30	0000	1.030	112.7
73/10/16	17 30	0000	0.499	42.4

APPENDIX D

TRIBUTARY and WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 75/10/23

1752A1
41 17 50.0 089 20 15.0
UNNAMED OUTLET
17095 7.5 DEPUE
O/DEPUE LAKE
BANK SAMPLE AT OUTLET TO ILLINOIS RIVER
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/06/02	13 00		6.000	1.380	0.273	0.231	0.345
73/07/07	10 00		3.600	2.800	0.600	2.800	3.000
73/08/04	20 30		3.100	5.600	0.730	0.590	0.790
73/09/09	10 00		2.040	10.000	1.900	2.100	3.700
73/10/13	10 30		3.000	2.100	0.056	0.650	1.000
73/11/10			3.200	3.900	1.260	1.920	4.100
73/12/02	12 00		3.100	3.500	1.180	2.500	6.300
74/01/05	11 30		4.800	4.600	1.160	2.760	7.000
74/02/16	11 30		4.300	2.400	0.440	0.390	0.970
74/03/06			4.900	2.075	0.570	1.230	1.950
74/04/06			4.700	2.800	0.990	3.400	3.900
74/05/06	11 30		3.500	4.000	2.200	6.550	11.000

STORET RETRIEVAL DATE 75/10/23

175221 AS175221 P001919
41 19 15.0 089 18 45.0
DEPUE S.T.P.
17011 7.5 DEPUE
D/LAKE DEPUE
LAKE DEPUE
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/12	10	55							
CP(T)-			1.100	6.600	0.062	2.200	2.600	0.340	0.375
73/07/12	15	25							
73/08/01	11	00							
CP(T)-			2.300	5.300	0.120	3.000	4.300	0.338	0.344
73/08/01	15	30							
73/09/05	11	00							
CP(T)-			0.540	9.900		4.000		0.405	0.401
73/09/05	15	00							
73/10/03	11	10							
CP(T)-			0.210	10.500	0.320	5.200	5.300	0.399	0.408
73/10/03	15	30							
73/11/06	11	00							
CP(T)-			0.480	9.200	0.160	2.900	4.400	0.501	0.527
73/11/06	15	20							
73/12/07	11	10							
CP(T)-			0.780	8.200	0.060	3.200	4.600	0.624	0.450
73/12/07	15	30							
74/01/04	11	00							
CP(T)-			0.760	10.500	0.110	3.200	5.100	0.588	0.598
74/01/04	15	30							
74/02/11	10	45							
CP(T)-			0.480	13.000	0.085	2.000	4.800	0.750	0.590
74/02/11	15	30							
74/03/11	11	05							
CP(T)-			0.120	7.500	0.065	1.850	2.800	0.730	0.657
74/03/11	15	30							
74/04/02	11	00							
CP(T)-			0.040	8.000	0.130	1.550	2.600	0.640	0.660
74/04/02	15	30							
74/06/20	11	00							
CP(T)-			1.160	7.000	0.025	1.750	3.450	0.600	0.601
74/06/20	15	15							
74/07/09	10	30							
CP(T)-			3.600	1.700	0.110	2.300	3.100	0.411	0.550
74/07/09	15	30							

23

STORET RETRIEVAL DATE 75/10/23

175221 AS175221 P001919
41 19 15.0 089 18 45.0
DEPUE S.T.P.
17011 7.5 DEPUE
D/LAKE DEPUE
LAKE DEPUE
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
74/08/05	11 00								
CP(T)-			1.480	5.800	0.080	2.700	4.600	0.389	0.426
74/08/05	15 30								